SECTION A

“USER SERVICES” DESCRIPTIONS

Source: National ITS Program Plan

Travel and Transportation Management

. En-Route Driver Information

Driver advisories and in-vehicle signing for convenience and safety during travel **.**

Once travel begins, driver advisories convey real-time information about traffic conditions, incidents, construction, transit schedules, and weather conditions to drivers of personal, commercial and public transit vehicles. This information allows a driver to select the best route, or shift to another mode in mid-trip if desired.
In-vehicle signing, the second component of en-route driver information, would provide the same types of information found on physical road signs today, directly in the vehicle.

. Route Guidance

Provides travelers with simple instructions on how to best reach destinations.

The route guidance service provides a suggested route to reach a specific destination. Early route guidance systems will be based on static information about the roadway net-work, transit schedules, etc. When fully deployed, route guidance systems will provide travelers with directions to their destinations based on real-time information about the transportation system. The route guidance service will consider traffic conditions, status and schedule of transit systems, and road closures in developing the best route. Directions will generally consist of simple instructions on turns or other upcoming maneuvers. Users of the service include not only drivers of all types of vehicles, but also non-vehicular travelers, such as pedestrians or bicyclists, who could get specialized route guidance from a hand-held device.

. Traveler Services Information

*Provides a business directory, or "yellow pages," of service information***.**

Traveler services information provides quick access to travel related services and facilities. Examples of information that might be included are the location, operating hours, and availability of food, parking, auto repair, hospitals, and police facilities. Traveler services information would be accessible in the home, office or other public locations to help plan trips, and might also be available en-route.

. Traffic Control

Manages the movement of traffic on streets and highways.

This service will provide for the integration and adaptive control of the freeway and surface street systems to improve the flow of tra0ic, give preference to public safety, transit or other high occupancy vehicles, and minimize congestion while maximizing the movement of people and goods. Through appropriate traffic controls, the service will also promote the safety on non-vehicular travelers, such as pedestrians and bicyclists. This service requires advanced surveillance of traffic flows, analysis techniques for determining appropriate traffic signal and ramp metering controls, and communication

of these controls to the roadside infrastructure. This service gathers data from the transportation system., organize it into unusable information, and uses it to determine the optimum assignment of right-of-way vehicles and pedestrians. The real-time traffic information collected by the Traffic Control services also provides the foundation for many other user services.

. Incident Management

Helps public and private organizations quickly identify incidents and implement a response to minimize their effects on traffic .

This service enhances existing capabilities for detecting and verifying incidents, in both urban and rural areas, and then taking the appropriate actions in response. The service would use advanced sensors, data processing, and communications to improve the incident management and response capabilities of transportation and public safety officials, the towing and recovery industry, and other involved in incident response.

. Emissions Testing and Mitigation

Provides information for monitoring air quality and developing air quality improvement strategies.

This service uses advanced vehicle emissions testing to provide information to identify environmental "hot spots" and implement strategies to reroute traf3ic around sensitive air quality areas, or control access to such areas. Other technologies provide identification of vehicles that are emitting levels of pollutants that exceed state, local or regional standards, and provides information to drivers or fleet operators to enable them to take corrective action. The service also provides transportation planning and operating agencies with information that can be used to facilitate implementation and evaluation of various pollution control strategies.

Travel Demand Management

. Pre-Trip Travel Information

Provides information for selecting the best transportation mode, departure time, and route.

Pre-trip travel information allows travelers to access a complete range of intermodal transportation information at home, work, and other major sites where trips originate. Real-time information on transit routes, schedules, transfers and fares, and ride matching services are available to encourage the use of alternatives to the single occupancy vehicle. Information needed for long, inter-urban or vacation trips would also be available. Real-time information on accidents, road construction, alternate routes, traffic speeds along given routes, parking conditions, event schedules, and weather information is also included. Based on this information, the traveler can select the best route, modes of travel and departure time, or decide not to make the trip at all.

. Ride Matching and Reservation

Makes ride sharing easier and more convenient.

This serves provides real-time ride matching information and reservations to users in their homes, offices or other locations, and assist transportation providers, as well as van/car-poolers, Smith vehicle assignments and scheduling. This will expand the market for ridesharing as an alternative to Single occupant automobile travel.

. Demand Management and Operations

Supports policies and regulations designed to mitigate the environmental and social impacts of traffic congestion.

This service generates and communicates management and control strategies that support the implementation of programs to reduce the number of individuals who choose to drive alone, especially to work; increase the use of high occupancy vehicles and transit; and manner, for example in non-peak periods. Demand management strategies could ultimately be applied dynamically, when congestion or pollution conditions warrant. For example, disincentives such as increased tolls and parking fees could be applied during pollution alerts or peak travel periods, while transit fares would be lowered to accommodate the increased number of travelers changing modes from driving alone.

Public Transportation Operations

. Public Transportation Management

Automates operations, planning, and management functions of public transit, systems.

This service provides computer analysis of real-time vehicle and facility status to improve transit operations and maintenance. The analysis identifies deviations Corn schedule, and provides potential solutions to dispatchers. Integrating this capability with traffic control services can help maintain transportation schedules and assure transfer connections in intermodal transportation. Information regarding passenger loading, bus running times, and mileage accumulated will help improve service and facilitate administrative reporting . Automatically recording and verifying performed tasks will also enhance transit personnel management.

. En-Route Transit Information

Provides information to travelers using public transportation after they begin their trips.

This service provides information to assist the traveler once public transportation travel begins. Real-time, accurate transit service information on board the vehicle helps travelers make effective transfer decisions and itinerary modifications as needed while a trip is underway.

. Personalized Public Transit

Flexibility routed transit vehicles offer more convenient service to customers.

Small publicly or privately operated vehicles provide on-demand routing to pick up passengers who have requested service and deliver them to their destinations. Route deviation schemes, where vehicles would leave a fixed route for a short distance to pick up or discharge passengers, in another way of improving service. Vehicles can include small busses, taxicabs, or other small, shared ride vehicles. This service can provide almost door-to-door service, expanding transit coverage to lesser populated locations and neighborhoods. This can potentially provide transportation at lower cost and with greater convenience that conventional fixed route transit.

. Public Travel Security

Creates a secure environment for public transportation patrons and operations.

This service provides systems that monitor the environment in transit stations, parking lots, bus stops, and on-board transit vehicles, and generate alarms, either automatically or manually, when necessary.

Electronic Payment

. Electronic Payment Services

This service will foster intermodal travel by providing a common electronic payment medium for all transportation modes and functions, including tools, transit fares, and parking. The service provides for a common service fee and payment structure using "smart cards" or other technologies. Such systems will be truly multi-use, allowing personal financial transactions on the same medium. The flexibility that electronic payment services offer will also facilitate travel demand management, if conditions warrant. They could, if local authorities so chose, enable application of road pricing policies which would influence departure times and mode selections.

Commercial Vehicle Operations

. Commercial Vehicle Electronic Clearance

Facilitates domestic and international border clearance, minimizing stops.

This service will enable transponder-equipped trucks and buses to have their safety status, credentials, and weight checked at mainline speeds. Vehicles that are safe and legal and have no outstanding out-of-service citations will be allowed to pass the inspection weigh facility without delay. By working with Mexico and Canada, a more efficient traffic flow would be provided at border crossings and the deployment of technologies in these countries could ultimately prevent overweight, unsafe, or improperly registered vehicles from entering the United States.

. Automated Roadside Safety Inspection

Facilities roadside inspections

Automated roadside inspections would allow real-time access at the roadside to safety performance record of carriers, vehicles, and drivers. Such access will help determine which vehicle or driver should be stopped for an inspection, as well as ensuring timely correction of previously identified problems.
This service would also automate as many items as possible of the manual inspection process. It would, for example, allow for more rapid and accurate inspection of brake performance at the roadside. Through the use of sensors and diagnostics, it would efficiently check vehicle systems and driver requirements and ultimately driver alertness and fitness for duty.

. On-Board Safety Monitoring

Senses the safety status of a commercial vehicle, cargo and driver .

On-board systems would monitor the safety status of a vehicle, cargo, and driver at mainline speeds. Vehicle monitoring would include sensing and collecting data on the condition of critical vehicle components such as brakes, tires and lights, and determining thresholds for warnings and countermeasures. Cargo monitoring would involve sensing unsafe conditions relating to vehicle cargo, such as shifts in cargo while the vehicle is in operations. Driver monitoring is envisioned to include the monitoring of driving time and alertness using non-intrusive technology and the development of warning systems for the driver, the carrier, and the enforcement official.

. Commercial Vehicle Administrative Processes

Provides electronic purchasing of credentials and automated mileage and fuel reporting and auditing.

Electronically purchasing credentials would provide the carrier with the capability to electronically purchase annual and temporary credentials via computer link. It will reduce burdensome paperwork and processing time for both the states and the motor carriers. For automated mileage and tie1 reporting and auditing, this service would enable participating interstate carriers to electronically capture mileage, Fuel purchased, trip, and vehicle data by state. It would also automatically determine mileage traveled and tie1 purchased in each state, for use by the carrier in preparing fuel tax and registration reports to the states.

. Hazardous Material Incident Response

Provides immediate description of hazardous materials to emergency responders .

This service would enhance the safety of shipments of hazardous materials by providing enforcement and response teams with timely, accurate information on cargo contents to enable them to react properly in emergency situations. When an incident involving a truck carrying hazardous material occurs, the material or combination of materials

involved would be electronically provided to emergency responders and enforcement personnel at the scene so that the incident can be handled properly.

. Commercial Fleet Management

Provides communications between drivers, dispatchers and intermodal; transportation providers.

The availability of real-time traffic information and vehicle location for commercial vehicles would significantly enhance the management of fleet operations by helping drivers to avoid congested area and improving the reliability and efficiency of pickups and deliveries. These benefits would be particularly important for operators of the intermodal and time-sensitive fleets who can use the ITS technologies to make their operations more efficient and reliable.

Emergency Management

. Emergency Notification and Personal Security

Provides immediate notification of an incident and an immediate request for assistance.

This service includes two capabilities: driver and personal security, and automatic collision notification.. Driver and personal security capabilities provide for user initiated distress signals, for incidents like mechanical breakdowns or car jacking. When activated by an incident, automatic collision notification transmits information regarding location, nature and severity of the crash to emergency personnel.

. Emergency Vehicle Management

Reduces the time it takes emergency vehicles to respond to an incident.

This service provides public safety agencies with fleet management capabilities, route guidance, and signal priority and/or preemption for emergency vehicles. Fleet management will improve the display of emergency vehicle locations and help dispatchers identify the units that can most quickly reach an incident site. Route guidance directs emergency vehicles to an incident locations, while signal priority optimize the traffic signal timing in an emergency vehicle’s route.

Advanced Vehicle Control and Safety Systems

. Longitudinal Collision Avoidance

Helps prevent head-on, rear-end or backing collisions between vehicles, or between vehicles and other objects or pedestrians.

This service helps reduce the number and severity of collisions. It includes the sensing of potential or impending collisions, prompting a driver's avoidance actions, and temporarily controlling the vehicle.

. Lateral Collision Avoidance

Helps prevent collisions when vehicles leave their lane of travel.

This service provides crash warnings and controls for lane changes and road departures. It will help reduce the number of lateral collisions involving two or more vehicles, or crashes involving a single vehicle leaving the roadway. For changing lanes, a situation display can continuously monitor the vehicle's blind spot, and drivers can be actively warned of an impending collision. If needed, automatic control can effectively respond to situations very rapidly. Warning systems can also alert a driver to an impending road departure, provide help in keeping the vehicle in the lane, and ultimately provide automatic control of steering and throttle in dangerous situations.

. Intersection Collision Avoidance

Helps prevent collisions at intersections

This service warns drivers of imminent collisions when approaching or crossing and intersections that has traffic control (e.g., stop signs or a traffic signal). This service also alters the driver when the proper right-of-way at the intersection is unclear or ambiguous.

. Vision Enhancement for Crash Avoidance

Improves the driver 3 ability to see the roadway and objects that are on or along the roadway.

Improved visibility will allow drivers to avoid potential collisions with other vehicles or obstacles in roadway, as well as help the driver comply with traffic signs and signals. This service requires in-vehicle equipment for sensing potential hazards, processing this information, and displaying it in a way that is useful to a driver.